

CLAIMS:

What is claimed is:

- 1 1. A method comprising:
2 removing material from a surface of a wafer by chemical mechanical
3 polishing the wafer with a slurry comprising an oxidation agent for the
4 material and a buffer; and
5 monitoring the current required to rotate the wafer as a measure of
6 the material removal endpoint.
- 1 2. The method of Claim 1, further comprising:
2 buffering with a weak organic acid/salt pair.
- 1 3. The method of Claim 2, further comprising:
2 buffering with a weak organic acid/salt from the group consisting of
3 citric acid/potassium citrate, acetic acid/potassium acetate and ascorbic
4 acid/potassium ascorbate.
- 1 4. A composition comprising:
2 a slurry for chemical mechanical polishing a metal material;
3 an oxidizing agent for the metal material;
4 an abrasive; and
5 a buffer;
6 wherein the composition is suitable for use in a chemical mechanical
7 polish process.
- 1 5. The composition of Claim 4, wherein the oxidizing agent is hydrogen
2 peroxide.
- 1 6. The composition of Claim 4, wherein the buffer is a weak organic
2 acid/salt pair.

- 1 7. The composition of Claim 6, wherein the weak organic acid
2 comprises one of the group consisting of citric acid/potassium citrate, acetic
3 acid/potassium acetate and ascorbic acid/potassium ascorbate.
- 1 8. The composition of Claim 4, wherein the metal film comprises one
2 of the group consisting of tungsten and titanium nitride.
- 1 9. The composition of Claim 4, wherein the oxide film comprises
2 silicon dioxide.
- 1 10. The composition of Claim 4, wherein the abrasive comprises one of
2 the group consisting of silica and alumina.
- 1 11. The composition of Claim 4, wherein the endpoint signal of the
2 buffered slurry is enhanced over the endpoint signal of the unbuffered
3 slurry by at least a factor of two.
- 1 12. A kit comprising:
2 a slurry for chemical mechanical polishing a metal material;
3 an oxidizing agent for the metal material;
4 an abrasive; and
5 a buffer.
- 1 13. The kit of Claim 12, wherein the metal comprises one of the group
2 consisting of tungsten and tantalum nitride.
- 1 14. The kit of Claim 12, wherein the abrasive comprises one of the group
2 consisting of silica or alumina.
- 1 15. The kit of Claim 12, wherein the buffer is an organic acid/salt pair.
- 1 16. The kit of Claim 15, wherein the organic acid comprises one of the
2 group consisting of citric acid/potassium citrate, acetic acid/potassium
3 acetate and ascorbic acid/potassium ascorbate.

- 1 17. The kit of Claim 12, wherein the endpoint signal of the buffered
- 2 slurry is enhanced over the endpoint signal of the unbuffered slurry by at
- 3 least a factor of two.

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